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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,115	08/28/2003	Keith D. Mease	TN285	7863

7590 06/09/2006

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EXAMINER	
PAPE, ZACHARY	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/651,115	MEASE ET AL.	
	Examiner	Art Unit	
	Zachary M. Pape	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/16/2006 has been entered.

Drawings

2. The drawings are objected to because it is unclear to the examiner, given Fig 1 of the present drawings, how the recess is defined by the base as described in claim 6. For the purposes of examination the Examiner has considered the limitation as recited in claim 6.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 9-11, 14, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Amaro et al. (US 5,986,888).

With respect to claim 1, Amaro et al. teaches a heat sink (10) configured to support an edge (74) of a circuit card (70), said heat sink comprising: a thermally conductive base (Generally 12); a plurality of thermally conductive heat dissipating fins (26) extending from said base; and one or more recesses (Between 26 and 16 as illustrated in Fig 5) at least partially defined by at least one of said fins (See Fig 5) the recesses having a depth smaller than the height of said fins (See Fig 7 while illustrates that the notch between 26 and 16 is smaller in depth than the fins 26), said one or more

recesses being configured to support the edge of the circuit card (Column 4, Lines 25-28).

With respect to claim 18, Amaro et al. further teaches a heat sink (10) guiding one or more circuit cards (70) and transferring heat from one or more heat-generating components (On 66), said heat sink comprising: a surface (16) defining one or more slots (Between 26 and 16) configured to guide an edge of a circuit card (Column 4, Lines 25-28); and heat dissipating fins (26) thermally coupled to said surface (See Fig 2), said one or more slots at least partially defined by at least one of said fins (The slot is defined as the void between 16 and the first fin 26) said one or more slots having a depth smaller than the height of said fins (As illustrated in Fig 7); said heat sink being configured to provide a thermal path from a heat-generating component (On 66) to said fins via said surface (Heat from the circuit board 66 will travel through the bottom of the plate (18) and thus dissipate heat).

With respect to claim 2, Amaro et al. further teaches that the base and fins are formed by extrusion (Column 2, Lines 12-14).

With respect to claim 3, Amaro et al. further teaches that the one or more recesses (Between 16 and 26) are further configured to support the edge (74) of the circuit card (70) in sliding association with said heat sink (See Figs 5 which illustrates that the circuit card can slide horizontally within the recess).

With respect to claims 4, and 21, Amaro et al. further teaches that the recess is a slot configured to guide the edge (74) of the circuit card (70) during sliding movement of the circuit card (See Fig 5).

With respect to claims 5 and 19, Amaro et al. further teaches a face (18) disposed opposite said fins (See Fig 1), said base being configured to be mounted with said face abutting a heat-generating component (See Fig 1). [The Examiner additionally notes that, it has been held that the recitation that an element is "configured to" perform a function is not a positive limitation but only requires the ability to so perform and is therefore given little patentable weight. In re Hutchison, 69 USPQ 138.]

With respect to claim 6, Amaro et al. further teaches that the recess is defined by the base (As illustrated in Fig 1).

With respect to claim 9, Amaro et al. further teaches that the fins (26) are oriented substantially parallel to one another (As illustrated in Fig 1).

With respect to claim 20, Amaro et al. further teaches having a substantially constant cross-sectional shape (See Fig 7).

With respect to claims 10-11, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Amaro et al. reference.

With respect to claim 14, Amaro et al. further teaches that the circuit card (70) carries at least one heat generating component (72), and said positioning step comprises thermally coupling the heat generating component (72) to the heat sink (10) when the circuit card (70) is positioned in the recess (between 16 and 26; see Fig 5).

Claims 1 (Alternatively) and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo (US 6,360,812).

With respect to claim 1, Lo teaches a heat sink (10) configured to support an edge (74) of a circuit card (70), said heat sink comprising: a thermally conductive base (Generally 20); a plurality of thermally conductive heat dissipating fins (22) extending from said base; and one or more recesses (See Present office action Fig 1 below) at least partially defined by at least one of said fins (See Fig 1 below) the recesses having a depth smaller than the height of said fins, said one or more recesses being configured to support the edge of the circuit card.

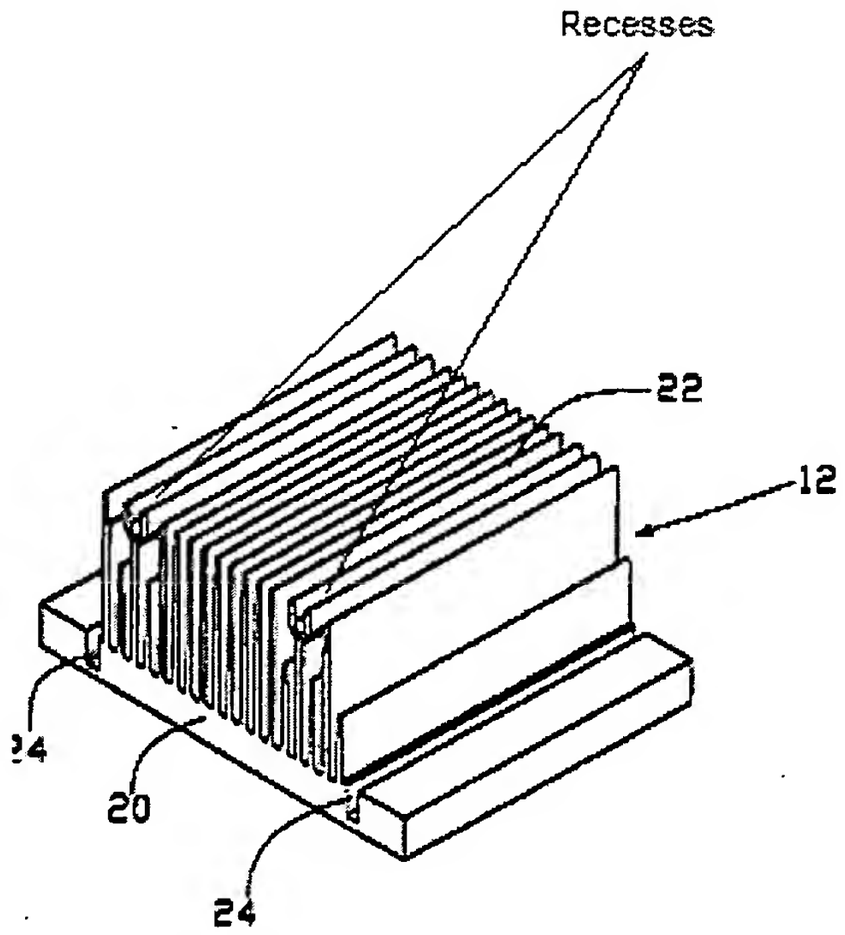

Fig 1

With respect to claim 7, Lo further teaches that the recess is defined by a plurality of said fins (As illustrated in Fig 1 above).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12-13, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amaro et al. in view of Lin et al. (US 6,307,748).

With respect to claims 12 and 15, Amaro et al. further teaches the use of a circuit board assembly comprising: a circuit board (66); and a heat sink (10) having a plurality of fins (26) for dissipating heat, said heat sink (10) defining a recess (Between 16 and the first fin of 26) for supporting and guiding an edge (74) of a circuit card (70) said recess at least partially defined by at least one of said fins and having a depth smaller than the height of said fins (As illustrated in Fig 7). Amaro et al. is silent as to a heat generating component being mounted on a circuit board and thermally coupling the heat sink to the heat generating component. Lin et al. teaches the conventionality of having a heat generating component (90) mounted on a circuit board (100) with a heat sink (80) thermally coupled thereto (See Fig 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Line et al. with that of Amaro et al. to provide cooling to an additional component mounted in the system of Amaro et al. (See Lin et al: Column 1, Lines 10-11).

With respect to claim 13, Amaro et al. in view of Lin et al. teaches the limitations of claim 12 above and further teaches that the heat-generating component (90) is

mounted on a circuit board (100), and said affixing step comprises affixing the heat sink (10) with the recess (Between 16 and fin 26) disposed opposite the heat-generating component (In that the heat generating component would thermally affix to the bottom (18) of the heat sink (10) and the recess is located at the top (16) of the heat sink (10)).

With respect to claim 16, Amaro et al. further teaches that the circuit card (70) comprises an edge portion (Generally 74) in sliding association with said recess (As illustrated in Fig 5).

With respect to claim 17, Amaro et al. further teaches a connector (78) configured for electrically coupling said circuit card (70) to a computer system (Via circuit board 66), said recess (Between 16 and fin 26) of said heat sink being oriented to guide said circuit card for coupling said connector to said computer system (As illustrated in Fig 5 where the mounting system (22, 52) for mounting the heat sink (10) to the circuit board (66) orientates the heat sink such that the recess of the heat sink will properly guide the pins to the correct orientation and place).

Response to Arguments

5. Applicant's arguments with respect to claims 1-7, 9-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary M. Pape whose telephone number is 571-272-

2201. The examiner can normally be reached on Mon. - Thur. & every other Fri. (8:00am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached at 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ZMP

LYNN FEILD
SUPERVISORY PATENT EXAMINER